

Janet Napolitano  
Governor

Kirk Rowdabaugh  
State Forester

# Arizona State Land Department

Office of the State Forester  
1110 West Washington, Suite 100



## **Forest Health Conditions Report State and Private Lands - Arizona 2006 Summary**

For the second consecutive year, variable weather conditions had a major affect on the overall health of our forests in Arizona. A very dry 2005-2006 winter caused extensive discoloration of foliage mainly at the lower elevations in the chaparral & oak-juniper vegetation types. In addition due to the mild winter temperatures, heavy populations of aphids were also detected again mainly in the lower elevation vegetation types.

More alarming was the eruption of the “February Fire” north of Payson presaging a very serious fire season, along with the associated effects of drought on our forests.

Noticeable due to the damaged appearance of the forest vegetation, were the numerous prescribe burns initiated by different land management agencies in the state in 2006. These treatments are necessary, but in some cases they caused very extensive scorch and mortality of the remaining vegetation.

Strong winds on the Catalina Mountains in February had yet another interesting effect on our forests. Surviving ponderosa pine trees exposed to strong winds by the devastating “Aspen Fire” in 2003, came crashing down for the second year in a row.

Strong winds were also a factor in breaking down dead pinyon pines in the Doney Park area east of Flagstaff in February, increasing the fire hazard. The trees were killed by Ips bark beetles stressed by drought in 2002-2003.

Saved by the numerous snows & rains in March, conditions in our forests improved dramatically in the spring. However, a riparian site in southeast Arizona was not a beneficiary of this rainfall—the moisture came too late. Drought conditions since about 2002 (and maybe earlier) had already taken a serious toll on the mature cottonwoods, willows and hackberry trees growing along a stretch of the Santa Cruz River near Rio Rico, AZ.

Additional windthrow & windbreak, mainly of ponderosa pine, was noted on the Catalina Mountains in mid-April following reported peak wind gusts of 93 mph! Wind gusts which also snapped trees in half & stripped branches from the trees.

Conspicuous due to their number were broom-like growths on juniper trees in the Prescott area in April. A species of Gymnosporangium rust was tentatively identified as the cause of these unusual growths.

Tiger moth tents containing the caterpillars that produce this webbing were very visible in the Flagstaff area in May, mainly on the tops of ponderosa pines. Populations of this insect have been reported in the Flagstaff area before and then all the way over to the White Mountains in previous years.

Several pockets of Ips bark beetle-killed ponderosa pines were detected in S. E. Payson & east of Payson in late May and June. This was the most bark beetle activity noted anywhere in the state during the year.

Tent caterpillars were highly visible in May along Highway 87 between Payson & Pine, & in Prescott on common chokecherry. Tents produced by these insects were also found on AZ white oak in Prescott. In addition, tent caterpillars were noted on three-leaf sumacs along Townsend-Winona Rd. in east Flagstaff & on currants in Parks, AZ in early June.

Pine tip moth activity was mainly concentrated in the Lakeside-Pinetop area in July. Tips of seedling ponderosa pines, thoroughly destroyed by the caterpillar stage of this insect, were readily visible in the area.

Much more visible in the Show Low-Lakeside-Pinetop area were the numerous new developments widely affecting the health of the remaining forest. It can take up to ten years for the remaining trees damaged by construction, to die from these types of disturbances. Proper construction practices before during and after development can largely mitigate any additional tree losses.

Juxtaposed to these new and older developments are a series of very large fuelbreaks constructed around those communities. These much needed fire-prevention treatments will also affect the health of the remaining trees for several years. Probably the most impressive fuelbreak has been built around the community of Pine & is visible with satellite imagery from space.

Variable weather conditions were once again experienced in 2006 during the summer “monsoon” season which produced high amounts of rainfall throughout most of the state.

The appearance of walnut anthracnose foliage disease, in the Prescott & Payson areas in August & September, was largely due to the increased rainfall. The disease was more curious than damaging to the walnuts due to the fact that the trees shed their leaves in the fall.

Even more dramatic was the profusion of forest floor fungi responding to the increased rainfall in the White Mountains in August. In addition to forest floor fungi, the fruiting bodies of a fungi found on the trunks of walnuts was highly visible in September in the Prescott area.

The discovery of two non-native & invasive plant species in July & September points out yet another threat to the health of our forests, which is usually overlooked. The presence of the very invasive Tree of Heaven in Show Low may be the highest elevation in which this tree has been found growing in AZ.

The second, although a highly attractive plant, was a grass species found growing along the Catalina Highway at about 3500' in elevation in September. This highly flammable grass from South Africa is called Natal grass. This is the third species of non-native grass found thoroughly infesting the roadway at the base of the Catalina Mountains. Fountain & Buffel grass, also from South Africa are already well established and pose a serious threat to our native vegetation when they do burn. These grasses are dependent on fire for their distribution.

Unusual pine tip moth activity was detected in the Prescott area in August & September, which was different from the normal type of damage described for the Pinetop-Lakeside area in July. The damage caused by the caterpillar stage of the insect occurred only at the base of the needles on the tips of sapling ponderosa pines. Previous examinations of the pine tip moth species in Prescott indicated a complex of species rather than a single species. This may explain the different types of damage experienced in the two areas of the state.

Walnut leafhopper burn was again noted in the Prescott & Payson areas in September. These insects have been noted before in the state and were even more noticeable in 2005 in the community of Star Valley. Discoloration caused by this insect is more unsightly than damaging even though there is some growth loss to the infested trees. The leaves are shed in a few weeks with the advent of fall. Some of these infested trees were also infected with walnut anthracnose.

Also in fall, the return of fall webworm was most visible in the Sedona & Village of Oak Creek areas in September. Cottonwoods seemed to be the favorite host, with many festooned with the characteristic webbing on the branch tips.

And even more visible in the Village of Oak Creek, was the severe damage caused by "La Barranta" fire in early June. Much of the vegetation at the eastern end of this community was totally destroyed by the fire. Other trees & shrubs that were scorched by the fire may die in the coming years.

The "Brins Fire" in lower Oak Creek Canyon also in June, caused extensive mortality of the vegetation on steep slopes. These slopes eroded with the heavy summer rains creating problems for traffic and homeowners along the canyon. Scorched trees and shrubs in this area will also die in the next few years, and some will be undermined by future erosion.

Variable weather was once again a factor in September in the Prescott area. Dramatic hail damage to pines, oaks & AZ Cypress was visible in the southwest side of town. Foliage of these affected species was strewn around these trees. Hail can have long-lasting effects on vegetation by damaging bark and knocking off twigs exposing the damaged areas to insects and diseases.

Walnut trees seemed to be the star attraction in 2006 with yet another observation in several areas of the state. Very noticeable brooming of tree branches was detected in Prescott, Pine and Oak Creek Canyon. Cause is unknown and trees will be re-examined in spring of 2007 for a causal agent(s).

2006 was definitely a banner year for numerous forest insects, diseases and weather-related observations. Spider mites, pinyon needle scale, oak branch girdlers, pinyon webworms, cypress/juniper beetles, mistletoes on non-native trees, slime molds, pinyon tip moths, elm leaf beetles, bordered plant bugs and willow leaf rosettes caused by midges, are just some examples of the great diversity detected in our forests in 2006.